BELEMNITES MUCRONATUS (COLEOIDEA): PROPOSED USE OF THE PLENARY POWERS TO ATTRIBUTE THIS NAME TO SCHLOTHEIM, 1813, AND TO DESIGNATE A NEOTYPE IN CONFORMITY WITH CURRENT USAGE. Z.N.(S.)1160

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Abstract.— Previous proposals to the Commission to designate a neotype for the species known for over 120 years as *Belemnitella mucronata* have been made by Jeletzky, 1964, and Naidin, 1971. The first has been criticised because of uncertainty as to the precise locality and horizon of the specimen proposed and because no topotypes could be collected; the second has been criticised because the type horizon was a thin stratigraphic unit within a condensed and discontinuous succession. In 1975 the present authors proposed a specimen from the Upper Campanian of Misburg, near Hannover, BRD and now ask the Commission to ratify it by the use of the plenary powers. They also ask that the name be attributed to Schlotheim, 1813, not to Link, 1807, its original author.

The name *Belemnitella mucronata* has been in continuous use since the generic name *Belemnitella* was first proposed by d'Orbigny in 1840 (*Paléontologie française*, Terr. Crét., vol. 1 (Céph.) p. 59). Not only is it the type species of that genus (by subsequent designation by Herrmannsen, 1846, *Indicis Generum Malacozoorum Primordia*, vol. 1, p. 105), but it is the index fossil of the Mucronata Zone established by Barrois in 1876 (*Mém. Soc. géol. Nord*, vol. 1, p. 112). In both these capacities it has been cited many hundreds of times in Russian, Polish, German, Scandinavian, French and English geological and palaeontological literature.

2. The fact that the foundations for this usage are insecure was first brought to the Commission's attention by Jeletzky (1964, *Bull. zool. Nom.*, vol. 21, pp. 268–296). He showed that the original nominal species that lies at the root of the issue, *Belemnites mucronatus* Link, 1807, is unidentifiable. The name has, in fact, most commonly been attributed to Schlotheim, 1813 (*Leonhard's Tasch. Min.* vol. 7, p. 111), who gave a fuller description and cited illustrations by Breynius (1732, *Tab. Belemn.*, figs. 1a, 2b) and

Faujas (1798 *Hist. nat. Mont. Saint-Pierre de Maastricht*). Although no valid lectotype selection seems ever to have been made, the name was for long applied as though Breynius's figures represented the type of the species. Modern usage stems chiefly from revisions by Archangelsky, 1912, *Materialy dlya Geologii Rossii,* vol. 25, 611 pp., and Nowak, 1913, *Bull. Acad. Sci. Cracovie,* Ser. B, 1913, pp. 335–412. More recent refinements were introduced by Jeletzky, 1955, *J. Paleont.,* vol. 29, pp. 478–509 and earlier works.

3. The assumption that Breynius's figures correctly represented *Belemnitella mucronata* auctorum was first critically examined by Wind, 1955, *Medd. dansk. geol. Foren.*, vol. 12, pp. 663–664. He showed that these figures represented a species congeneric with *Belemnites lanceolatus* Schlotheim, 1813 (*op. cit.*, p. 111). This species is the type species of *Belemnella* Nowak, 1913, *Bull. Acad. Sci. Cracovie* (1913) B pp. 393, 403, pl. 43, fig. 36b, by subsequent designation by von Bülow-Trummer, 1920, *Fossilium Catalogus*, I, Animalia, pars 11, p. 195. The unfortunate consequences of this discovery are four: first, *Belemnella* becomes a junior subjective synonym of *Belemnitella*; secondly, the name *Belemnitella* must be transferred from the group of Campanian species for which it has consistently been used since 1840 to a group of Maestrichtian species which have been consistently referred to *Belemnella* since 1913; thirdly, *Belemnitella mucronata* auctorum, with the other Campanian species considered congeneric with it, is left without a valid generic name; and fourthly, stratigraphic nomenclature would be violently disturbed by the transfer of the term "Mucronata Zone" from a Campanian to a Maestrichtian zone.

4. Dr Jeletzky's first attempt in 1964 to prevent these consequences from arising was supported by R.V. Melville, C.W. Wright and C.L. Forbes (1965, *Bull. zool. Nom.*, vol. 22, pp. 138–139). Peake & Hancock (1966, *ibid.*, pp. 343–345) supported the proposals in principle, but opposed the means by which Dr Jeletzky had proposed to stabilise existing usage of the name *Belemnitella mucronata* — namely, by designating a neotype from Upper Campanian strata near Norwich, England. Peake & Hancock pointed out that the location of the chalk pit from which the proposed neotype came was doubtful, that the position of the strata exposed there within the 100 metres or so of the Mucronata Zone could not be accurately determined, and that no comparative topotype material could be collected. They urged that a neotype should be proposed from specimens collected either at Misburg, near Hannover, or at Lägerdorf, Holstein, BRD. In this they were supported by Melville & Wood (1966, *Bull.* vol. 23, pp. 70–71). The main thrust of the argument for a neotype of German origin is

that it can be collected from a thick and uninterrupted stratigraphic succession containing both an abundant, well-preserved belemnite population and an abundant microfauna, so that both intra-regional and inter-regional correlations can be made with confidence. Taxonomic work of the last thirty years makes it desirable to define the nominal taxon *Belemnites mucronatus mucronatus* with the highest possible degree of morphological and stratigraphic precision. Mr Wood thereupon entered into correspondence with German colleagues on this subject.

5. Birkelund & Rasmussen (1956, *Pal. Zeitschr.* vol. 28, Sonderheft, pp. 80–86) and Birkelund (1957, *Biol Skr. k. dansk. Vid. Selskab.*, vol. 9, 69 pp.) recalled that modern usage of the name *Belemnitella mucronata* stemmed from the work of Archangelsky, 1912, and proposed that one of his figured specimens should be designated as lectotype. Naidin (1971, *Bull. zool. Nom.*, vol. 28, pp. 131–138) pointed out that only an indeterminable fragment of a belemnite survived from the material studied by Archangelsky. He therefore visited Archangelsky's section on the banks of the Volga, described it in detail, listed the belemnite fauna and the microfauna, and proposed a neotype from the material he had collected. In 1973 (*Geol. Jahrb.* A9, pp. 41–45) the authors of the present application criticised Naidin's proposal because the type horizon occurs in a thin sedimentary unit in a condensed succession, separated from the underlying and overlying units by significant non-sequences. Since *Belemnitella mucronata mucronata* and other subspecies of *B. mucronata* are used in both local and long-distance correlations, it is particularly desirable that the neotype of the nominate subspecies come from a stratigraphic context that is as complete and continuous as possible, as already stated by Peake & Hancock and by Melville & Wood.

6. In 1975, therefore (*Geol. Jahrb.* A28, pp. 27–57), we proposed a neotype for *Belemnites mucronatus* under the following conditions:

(a) the specimen is one of a sample of 132 individuals of the subspecies collected from a well-defined stratum 4.55 m thick within 110 m of Chalk with *Belemnitella*;

(b) the homogeneity of this sample has been demonstrated by morphometric analysis;

(c) the locality of the proposed neotype — the Germania IV quarry at Misburg, near Hannover — is likely to remain accessible for many years;

(d) the lithostratigraphy and biostratigraphy of the beds exposed in this quarry have been analysed in detail by Khosrovschahian (unpublished thesis, 1972), who found no evidence of non-sequences or significant

interruptions in sedimentation;

(e) the 4.55 m stratum corresponds to a frequency maximum, not only of *Belemnitella,* but also of a diversity of other macrofossils (which are listed, with the microfauna, in our 1975 paper);

(f) the stratum lies within the horizon which yields belemnites generally accepted as typical *B. mucronata* (i.e. the lower half of the Upper Campanian: *Hoplitoplacenticeras vari* Zone, Subzone of *Pachydiscus stobaei* and *Galeola papillosa*) and can be precisely correlated with horizons in the Chalk of Norfolk and Northern Ireland;

(g) the proposed neotype has been deposited, with the rest of the sample from which it came, in the collections of the Niedersächsisches Landesamt für Bodenforschung, Hannover, BRD, with the register number kca 5/2.

7. It only remains to consider the authorship of the nominal species (and its nominate subspecies) in question here. Melville & Wood, 1966, showed that *Belemnites mucronatus* Link, 1807, is not only proposed conditionally, but also that the accompanying description and data are so poor that it is impossible to have any idea of the starting point from which a neotype is to be designated. As for Schlotheim's use of the name, it is impossible to be sure whether he knew of Link's work or not, but it is perfectly clear that the figures of Breynius to which he referred represent a late Cretaceous belemnite. Melville & Wood asked the Commission to rule that *Belemnites mucronatus* Link, 1807 is not available because it was proposed conditionally, but under Article 17(8) of the Code such names, if proposed before 1961, are available, and there is just enough description to satisfy the conditions of Article 12. Link's name can therefore only be removed by suppression under the plenary powers.

8. We therefore ask the International Commission on Zoological Nomenclature:

(1) to use its plenary powers

(a) to suppress the specific name *mucronatus* as published in the binomen *Belemnites mucronatus*, by Link, 1807, and all other uses prior to its use by Schlotheim, 1813, for the purposes of both the Law of Priority and the Law of Homonymy;

(b) to set aside all designations of type specimen hitherto made for the nominal species *Belemnites mucronatus* Schlotheim, 1813, and to designate specimen no kca 5/2 in the collections of the Niedersächsisches Landesamt für Bodenforschung

as neotype of that species (*Geol. Jahrb.* A. 28, pl. 1, fig. 1);

(2) to place on the Official List of Generic Names in Zoology:
   (a) *Belemnitella* d'Orbigny, 1840 (gender: feminine), type species, by subsequent designation by Herrmannsen, 1846, *Belemnites mucronatus* Schlotheim, 1813;
   (b) *Belemnella* Nowak, 1913 (gender: feminine), type species, by subsequent designation by von Bülow-Trummer, 1920, *Belemnites lanceolatus* Schlotheim, 1813;

(3) to place on the Official List of Specific Names in Zoology:
   (a) *mucronatus* Schlotheim, 1813, as published in the binomen *Belemnites mucronatus*, and as defined by the neotype designated under the plenary powers in (1)(b) above (specific name of type species of *Belemnitella* d'Orbigny, 1840);
   (b) *lanceolatus* Schlotheim, 1813, as published in the binomen *Belemnites lanceolatus* (specific name of type species of *Belemnella* Nowak, 1913).

(4) to place the family name BELEMNITELLIDAE Pavlow, 1914, *Mém. Acad. imp. Sci. St. Pétersbourg*, vol. 21 (4), p.7, on the Official List of Family-Group Names in Zoology.

Dr J.A. Jeletzky (*Energy, Mines and Resources Canada, 601 Booth Street, Ottawa, Canada K1A 0E8*), the original applicant in this case, approves of our choice of a proposed neotype and supports this application.